

Amendments to the Claims

The following list reflects amendments to the claims and replaces all prior versions and listings of claims in this application.

Claims 1 to 25 (Previously cancelled)

Claim 26 (Previously amended): A spray drying system for forming a pharmaceutical formulation, the system comprising:

an atomizer, the atomizer comprising a first channel through which a liquid flow, the channel comprising a constriction for spreading the liquid into a thin film in the channel, the atomizer further comprising a second channel though which an atomizing gas flow, the second channel being positioned so that the atomizing gas impinges the liquid thin film to produce droplets;

a drying chamber to dry the droplets to form particles; and
a collector to collect the particles.

Claim 27 (Previously added): The system of claim 26, wherein the constriction has a diameter less than 0.51 mm (0.020 in).

Claim 28 (Previously added): The system of claim 26, wherein the constriction has a diameter less than 0.1 mm (0.005 in).

Claim 29 (Previously added): The system of claim 26, further comprising a third channel for a gas flow.

Claim 30 (Previously added): The system of claim 26, wherein the first channel is annular.

Claim 31 (Previously added): The system of claim 26, wherein the drying chamber has a gas inlet stream having an inlet temperature of at least 90°C.

Claim 32 (Previously added): The system of claim 26, wherein the drying chamber has a gas outlet stream having an outlet temperature of at least 50°C.

Claim 33 (Previously added): A spray drying system for forming a pharmaceutical formulation, the system comprising:

an atomizer, the atomizer comprising a first channel through which a pharmaceutical liquid flows, the channel comprising a constriction for spreading the pharmaceutical liquid into a thin film in the channel, the atomizer further comprising a second channel through which an atomizing gas flows, the second channel being positioned so that the atomizing gas impinges the liquid thin film to produce droplets;

a drying chamber to dry the droplets to form particles; and

a collector to collect the particles.

Claim 34 (Previously added): The system of claim 33, wherein the constriction has a diameter less than 0.51 mm (0.020 in).

Claim 35 (Previously added): The system of claim 33, wherein the constriction has a diameter less than 0.1 mm (0.005 in).

Claim 36 (Previously added): The system of claim 33, further comprising a third channel for a gas flow.

Claim 37 (Previously added): The system of claim 33, wherein the first channel is annular.

Claim 38 (Previously added): The system of claim 33, wherein the drying chamber has a gas inlet stream having an inlet temperature of at least 90°C.

Claim 39 (Previously added): The system of claim 33, wherein the drying chamber has a gas outlet stream having an outlet temperature of at least 50°C.

Claim 40 (Previously added): The system of claim 33, wherein the pharmaceutical liquid comprises an active agent and an excipient.

Claim 41 (Previously added): The system of claim 33, wherein the particles have a rugosity above 2.

Claim 42 (Previously added): The system of claim 33, wherein the particles have a density below 0.5 g/cm³.

Claim 43 (Currently amended): The system of claim 33 40, wherein the particles have said excipient has a glass transition temperature above 35°C.

Claim 44 (Previously added): The system of claim 33, wherein the particles have a mass median diameter less than 20 µm.

Claim 45 (Previously added): A spray drying system for forming a pharmaceutical formulation, the system comprising:

an atomizer, the atomizer comprising a first annular channel for a liquid flow, the channel comprising a constriction for spreading the liquid into a thin film in the channel, the atomizer further comprising a second annular channel for an atomizing gas flow, the second channel being positioned so that the atomizing gas impinges the liquid thin film to produce droplets;

a drying chamber to dry the droplets to form particles; and

a collector to collect the particles.

Claim 46 (Previously added): The system of claim 45, wherein the constriction has a diameter less than 0.51 mm (0.020 in).

Claim 47 (Previously added): The system of claim 45, wherein the constriction has a diameter less than 0.1 mm (0.005 in).

Claim 48 (Previously added): The system of claim 45, further comprising a third channel for a gas flow.

Claim 49 (Previously added): The system of claim 45, wherein the drying chamber has a gas inlet stream having an inlet temperature of at least 90°C.

Claim 50 (Previously added): The system of claim 45, wherein the drying chamber has a gas outlet stream having an outlet temperature of at least 50°C.

Claim 51 (Previously added): The system of claim 33, wherein the particles have a rugosity above 2.